HP ZR2040w, ZR2240w, ZR2440w and ZR2740w LCD Monitors

User Guide

First Edition (September 2011)

About This Guide

This guide provides information on setting up the monitor, installing drivers, using the on-screen display menu (select models), troubleshooting and technical specifications.

WARNING! Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

NOTE: Text set off in this manner provides important supplemental information.

Table of contents

1 Product Features

The LCD (liquid crystal display) monitors have an active matrix of thin-film transistors (TFT). All models have the following features:

- Mercury-free LED backlight

- Wide viewing angle to allow viewing from a sitting or standing position, or moving side-to-side

- Removable pedestal and VESA-standard mounting holes for flexible mounting solutions

- Support for the optional HP speaker bar (purchased separately)

- Plug and play capability when supported by the operating system

- Security slot provision on rear of monitor for optional cable lock

- Cable management feature for placement of cables and cords

- HDCP (High-Bandwidth Digital Content Protection) copy protection on all digital inputs

- Software and documentation CD that includes monitor drivers, utilities, and product documentation

- Energy saver feature to meet requirements for reduced power consumption

- Intelligent Management AssetControl

- Compliant with the European Union RoHS Directive

ZR2040w Model

Features of the ZR2040w model include:

- 50.8 cm (20-inch) diagonal viewable area display with 1600 × 900 resolution, plus full-screen support for lower resolutions

- Video signal input to support VGA analog with VGA signal cable provided

- Video signal input to support DVI digital with DVI-D signal cable provided

- Video signal input to support DisplayPort digital with DisplayPort signal cable provided

- Landscape and portrait orientations

- Tilt adjustment

- On-Screen Display (OSD) adjustments in several languages for ease of setup and screen optimization

- HP Display Assistant utility software for adjusting monitor settings and enabling the theft deterrence feature

- Auto-adjustment Pattern Utility

- Privacy filter slots to insert filters (purchased separately) to block side screen viewing
- Energy Star Qualified and meets TCO Requirements

ZR2240w Model

Features of the ZR2240w model include:

- 54.72 cm (21.5-inch) diagonal viewable area display with 1920 × 1080 resolution, plus full-screen support for lower resolutions
- Video signal input to support VGA analog with VGA signal cable provided
- Video signal input to support DVI digital with DVI-D signal cable provided
- Video signal input to support HDMI digital
- Dynamic Contrast Ratio: 2,000,000:1
- Video signal input to support DisplayPort digital with DisplayPort signal cable provided
- USB 2.0 hub with one upstream (connects to the computer) and four downstream (connect to USB devices) ports
- USB cable included to connect to the monitor's USB hub and to a USB connector on a computer
- 8-way comfort adjust including Height, Tilt, Pivot and Swivel adjustments
- HP Quick Release 2 is now a flush mount solution that lets you quickly install the panel with a simple click and remove it with the convenient sliding tab release
- Easy access pull-out information card with the information needed for a support call
- On-Screen Display (OSD) adjustments in several languages for ease of setup and screen optimization
- HP Display Assistant utility software for adjusting monitor settings and enabling the theft deterrence feature
- Auto-adjustment Pattern Utility
- Privacy filter slots to insert filters (purchased separately) to block side screen viewing
- Energy Star Qualified and meets TCO Requirements

ZR2440w Model

Features of the ZR2440w model include:

- 61.13 cm (24-inch) diagonal viewable area display with 1920 × 1200 resolution, plus full-screen support for lower resolutions
- Video signal input to support DisplayPort digital with DisplayPort signal cable provided
- Video signal input to support HDMI digital
- Video signal input to support DVI digital with DVI-D signal cable provided
- Dynamic Contrast Ratio: 2,000,000:1

- USB 2.0 hub with one upstream (connects to the computer) and four downstream (connect to USB devices) ports

- USB cable included to connect to the monitor's USB hub and to a USB connector on a computer

- SPDIF Digital Audio Output signal

- Analog audio output signal to support 2.0 Sound

- 8-way comfort adjust including Height, Tilt, Pivot and Swivel adjustments

- HP Quick Release 2 is now a flush mount solution that lets you quickly install the panel with a simple click and remove it with the convenient sliding tab release

- Easy access pull-out information card with the information needed for a support call

- On-Screen Display (OSD) adjustments in several languages for ease of setup and screen optimization

- HP Display Assistant utility software for adjusting monitor settings and enabling the theft deterrence feature

- Privacy filter slots to insert filters (purchased separately) to block side screen viewing

- Energy Star Qualified and meets TCO Requirements

ZR2740w Model

Features of the ZR2740w model include:

- 68.74 cm (27-inch) diagonal viewable area display with 2560 x 1440 resolution

- Video signal input to support DVI digital with DVI-Dual Link signal cable provided

- Video signal input to support DisplayPort digital with DisplayPort signal cable provided

- USB 2.0 hub with one upstream (connects to the computer) and four downstream (connect to USB devices) ports

- USB cable included to connect to the monitor's USB hub and to a USB connector on a computer

- 8-way comfort adjust including Height, Tilt, Pivot and Swivel adjustments

- HP Quick Release 2 is now a flush mount solution that lets you quickly install the panel with a simple click and remove it with the convenient sliding tab release

- Easy access pull-out information card with the information needed for a support call

2 Safety and Maintenance Guidelines

Important Safety Information

A power cord is included with the monitor. If another cord is used, use only a power source and connection appropriate for this monitor. For information on the correct power cord set to use with the monitor, refer to the Power Cord Set Requirements on page 52 in Appendix C.

WARNING! To reduce the risk of electric shock or damage to the equipment:

• Do not disable the power cord grounding feature. The grounding plug is an important safety feature.

• Plug the power cord in a grounded (earthed) outlet that is easily accessible at all times.

• Disconnect power from the product by unplugging the power cord from the electrical outlet.

For your safety, do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

To reduce the risk of serious injury, read the *Safety and Comfort Guide*. It describes proper workstation, setup, posture, and health and work habits for computer users, and provides important electrical and mechanical safety information. This guide is located on the Web at http://www.hp.com/ergo and/or on the documentation CD, if one is included with the monitor.

CAUTION: For the protection of the monitor, as well as the computer, connect all power cords for the computer and its peripheral devices (such as a monitor, printer, scanner) to some form of surge protection device such as a power strip or Uninterruptible Power Supply (UPS). Not all power strips provide surge protection; the power strips must be specifically labeled as having this ability. Use a power strip whose manufacturer offers a Damage Replacement Policy so you can replace the equipment, if surge protection fails.

Use the appropriate and correctly sized furniture designed to properly support your HP LCD monitor.

WARNING! LCD monitors that are inappropriately situated on dressers, bookcases, shelves, desks, speakers, chests, or carts may fall over and cause personal injury.

Care should be taken to route all cords and cables connected to the LCD monitor so that they can not be pulled, grabbed, or tripped over.

Maintenance Guidelines

To enhance the performance and extend the life of the monitor:

● Do not open the monitor cabinet or attempt to service this product yourself. Adjust only those controls that are covered in the operating instructions. If the monitor is not operating properly or has been dropped or damaged, contact an authorized HP dealer, reseller, or service provider.

● Use only a power source and connection appropriate for this monitor, as indicated on the label/back plate of the monitor.

- Be sure the total ampere rating of the products connected to the outlet does not exceed the current rating of the electrical outlet, and the total ampere rating of the products connected to the cord does not exceed the rating of the cord. Look on the power label to determine the ampere rating (AMPS or A) for each device.

- Install the monitor near an outlet that you can easily reach. Disconnect the monitor by grasping the plug firmly and pulling it from the outlet. Never disconnect the monitor by pulling the cord.

- Turn the monitor off when not in use. You can substantially increase the life expectancy of the monitor by using a screen saver program and turning off the monitor when not in use.

NOTE: Monitors with a "burned-in image" are not covered under the HP warranty.

- Slots and openings in the cabinet are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.

- Do not drop the monitor or place it on an unstable surface.

- Do not allow anything to rest on the power cord. Do not walk on the cord.

- Keep the monitor in a well-ventilated area, away from excessive light, heat or moisture.

- When removing the monitor base, you must lay the monitor face down on a soft area to prevent it from getting scratched, defaced, or broken.

Cleaning the Monitor

1. Turn off the monitor at the master power switch (on the back) and unplug the power cord from the back of the unit.

2. Dust the monitor by wiping the screen and the cabinet with a soft, clean antistatic cloth.

3. For more difficult cleaning situations, use a 50/50 mix of water and Isopropyl alcohol.

CAUTION: Spray the cleaner onto a cloth and use the damp cloth to gently wipe the screen surface. Never spray the cleaner directly on the screen surface. It may run behind the bezel and damage the electronics.

CAUTION: Do not use cleaners that contain any petroleum based materials such as benzene, thinner, or any volatile substance to clean the monitor screen or cabinet. These chemicals may damage the monitor.

Shipping the Monitor

Keep the original packing box in a storage area. You may need it later if you move or ship the monitor.

3   Setting Up the Monitor

To set up the monitor, ensure that the power is turned off to the monitor, computer system, and other attached devices, then follow the instructions below.

NOTE: Be sure the master power switch, located on the rear panel of the monitor, is in the off position. The master power switch turns off all power to the monitor.

Installing the Pedestal

NOTE: Do not install the pedestal if the monitor will be used on a wall, swing arm, or other mounting fixture; instead see Mounting the Monitor to User-Supplied Support Hardware on page 15 in this chapter.

CAUTION: Whenever you handle the monitor, take care not to touch the surface of the LCD panel. Pressure on the panel may cause non-uniformity of color or disorientation of the liquid crystals. If this occurs the screen will not recover to its normal condition.

To assemble the ZR2040w, slide the pedestal upright into its base, as shown below.

Figure 3-1 Assembling the ZR2040w pedestal

Models ZR2240w, ZR2440w, and ZR2740w use the HP Quick Release 2 mechanism for easy moving of the monitor. To mount the panel onto the pedestal:

1. Slide the mounting plate on the pedestal under the upper lip of the recess in the back of the panel.

2. Lower the pedestal into the recess until it snaps into place.

3. The HP Quick Release 2 latch pops up when the monitor is locked in place.

Figure 3-2 Mounting the Panel onto the HP Quick Release 2
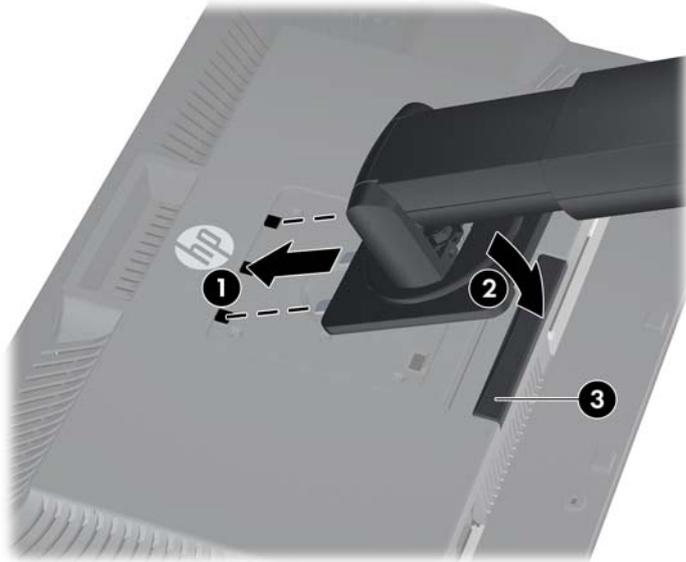
Rear Components

ZR2040w Model

Figure 3-3 ZR2040w Rear Components
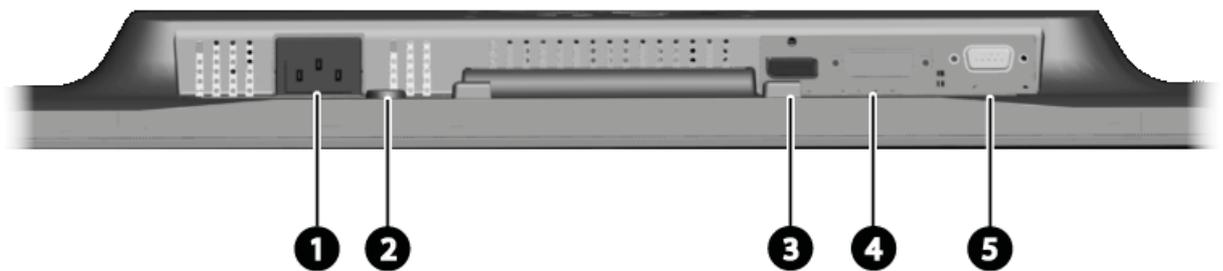
Component		Function
1	AC Power Connector	Connects the AC power cord to the monitor.
2	Cable Lock Provision	Provides slot for use with cable security locks.
3	DisplayPort Connector	Connects the DisplayPort cable to the monitor.

Component		Function
4	DVI-D Connector	Connects the DVI-D cable to the monitor.
5	VGA Connector	Connects the VGA cable to the monitor.

ZR2240w Model

Figure 3-4 ZR2240w Rear Components
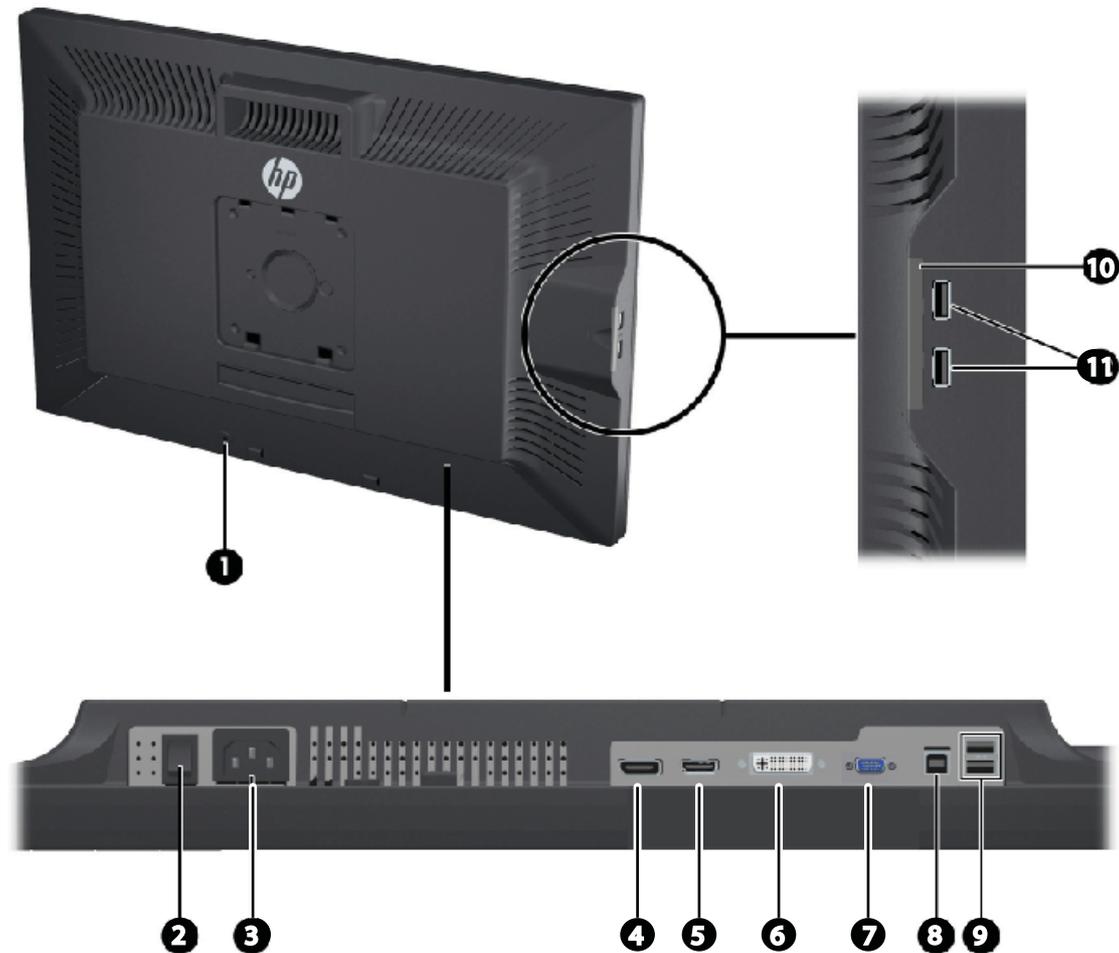
Component		Function
1	Cable Lock Provision	Provides slot for use with cable security locks.
2	Master Power Switch	Turns off all power to the monitor.
3	AC Power Connector	Connects the AC power cord to the monitor.
4	DisplayPort Connector	Connects the DisplayPort cable to the monitor.
5	HDMI Connector	Connects an HDMI cable to the monitor.
6	DVI-D Connector	Connects the DVI-D cable to the monitor.

Component		Function
7	VGA Connector	Connects the VGA cable to the monitor
8	USB Upstream Connector	Connects the monitor USB hub cable to a host USB port/hub.
9	USB Downstream Connectors	Connects optional USB devices to the monitor.
10	Information Card	Provides information needed for a support call.
11	USB Downstream Connectors (side panel)	Connects optional USB devices to the monitor.

ZR2440w Model

Figure 3-5 ZR2440w Rear Components
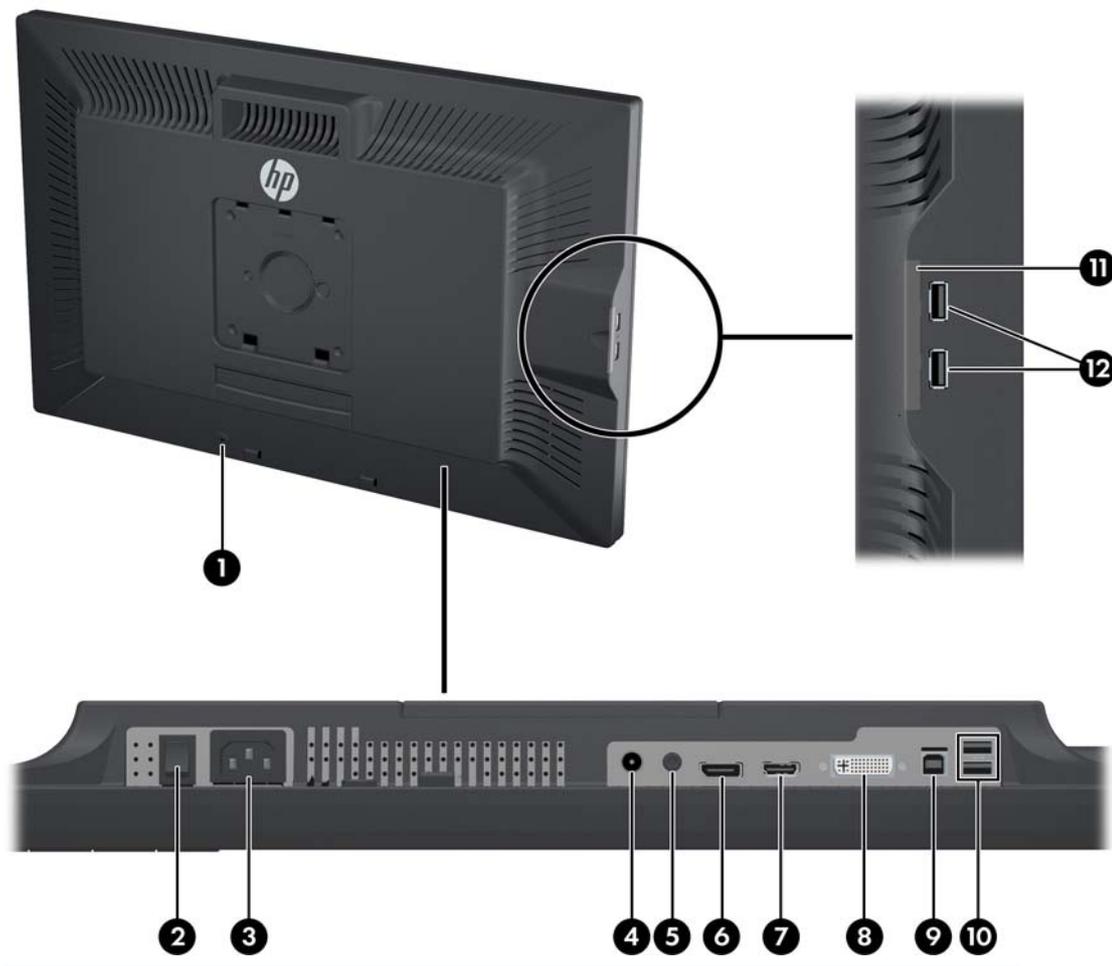
Component		Function
1	Cable Lock Provision	Provides slot for use with cable security locks.
2	Master Power Switch	Turns off all power to the monitor.

Component		Function
3	AC Power Connector	Connects the AC power cord to the monitor.
4	Digital Audio Output	Connects an audio cable with RCA plug to the monitor.
5	Analog Audio Output	Connects an audio cable with 3.5 mm L/R mini-plug to the monitor.
6	DisplayPort Connector	Connects the DisplayPort cable to the monitor.
7	HDMI Connector	Connects an HDMI cable to the monitor.
8	DVI-D Connector	Connects the DVI-D cable to the monitor.
9	USB Upstream Connector	Connects the monitor USB hub cable to a host USB port/hub.
10	USB Downstream Connectors	Connects optional USB devices to the monitor.
11	Information Card	Provides information about the monitor.
12	USB Downstream Connectors (side panel)	Connects optional USB devices to the monitor.

ZR2740w Model

Figure 3-6 ZR2740w Rear Components

	Component	Function
1	Cable Lock Provision	Provides slot for use with cable security locks.
2	Master Power Switch	Turns off all power to the monitor.
3	AC Power Connector	Connects the AC power cord to the monitor.
4	DisplayPort Connector	Connects the DisplayPort cable to the monitor.
5	DVI-D Connector	Connects the DVI-D cable to the monitor.
6	USB Upstream Connector	Connects the monitor USB hub cable to a host USB port/hub.
7	USB Downstream Connectors	Connects optional USB devices to the monitor.
8	Information Card	Provides information needed for a support call.
9	USB Downstream Connectors (side panel)	Connects optional USB devices to the monitor.

Routing and Connecting the Cables

Place the monitor in a convenient, well-ventilated location near the computer.

ZR2040w Model

The cable-restraining bar on the pedestal of the ZR2040w is held in place by four tabs.

Figure 3-7 Cable-Restraining Bar
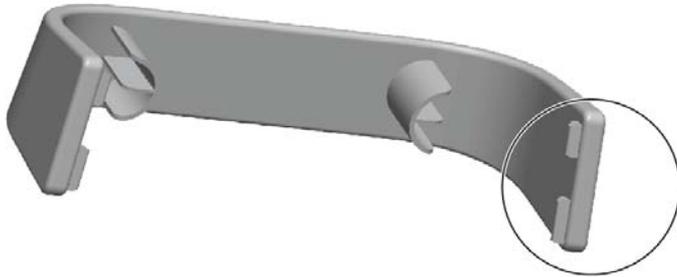
1. To remove the bar, first pull one end of the bar away from the pedestal (1). When it is free, the bar can be removed (2).
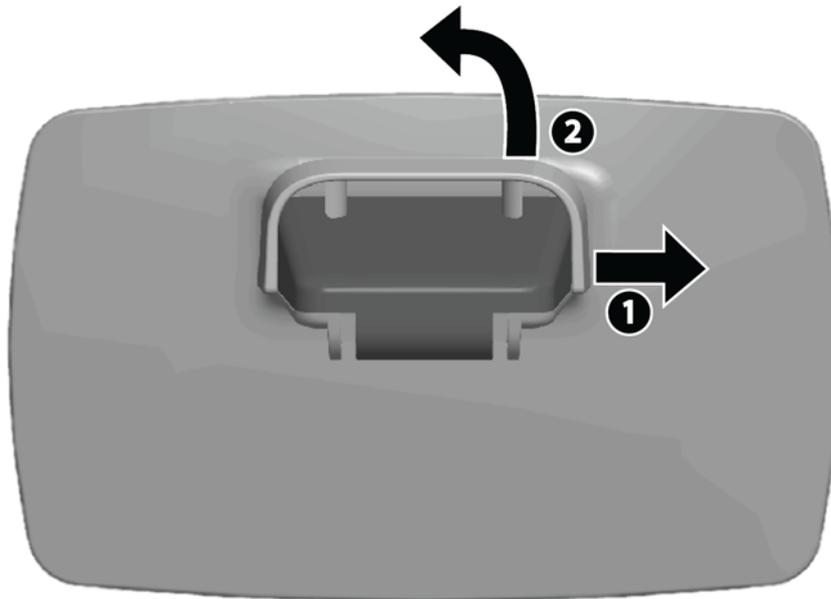
2. Connect the video cables provided to the connectors shown in . You do not have to connect them all.

3. For each cable you've attached, plug the other end into the appropriate connector on the computer.

4. Connect the AC power cord and plug it into the wall outlet.

⚠ **WARNING!**   To reduce the risk of electric shock or damage to the equipment:

Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.

Disconnect power from the equipment by unplugging the power cord from the electrical outlet.

For your safety, do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

5. Gather the video cables and replace the cable-restraining bar so as to contain the cables.

Figure 3-8 ZR2040w Model Cable Routing
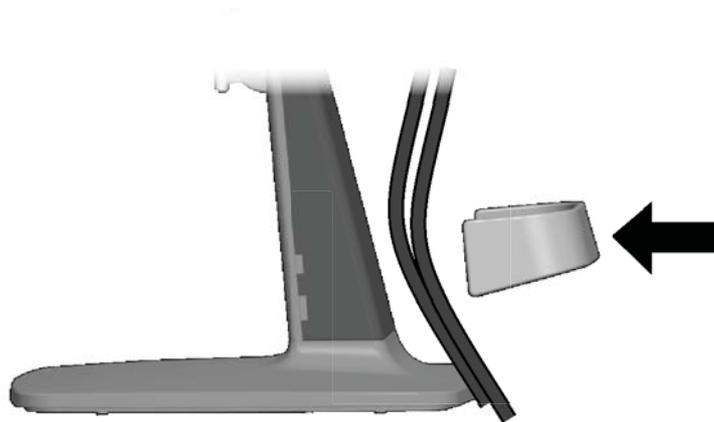
ZR2240w, ZR2440w, and ZR2740w Models

1. Remove the cable routing cover by pulling it straight off the front of the column.

   Figure 3-9 Cable Routing Cover

2. Before connecting the cables, route them through the cable routing hole in the column (1) and replace the cable routing cover (2).

   Figure 3-10 Cable Routing
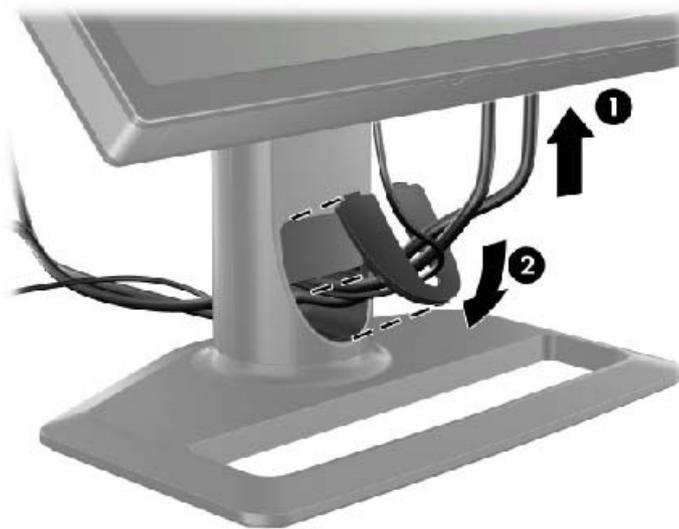
3. Connect the desired signal sources. Refer to the drawings in (Rear Components on page 7) to identify the connectors on your monitor. For each one, plug in one end of the appropriate cable. Attach the other end to your computer or other video source.

   The ZR2440w model supports audio output from the HDMI and DisplayPort inputs. Use the RCA jack for digital output and the 3.5 mm mini-jack for analog 2.0 Sound.

   NOTE: It is not necessary to connect all the connectors to video sources.

4. If you will be using USB devices (such as a digital camera, USB keyboard, or USB mouse), connect one end of the provided USB cable to the USB hub connector on the rear panel of the computer, and the other end to the upstream USB connector on the monitor. The four downstream USB ports (two on the rear and two on the side) are now available for your devices.

   Figure 3-11 Connecting USB Cables

5. Connect one end of the power cable to the AC power connector on the back of the monitor, and the other end to an electrical wall outlet.

   WARNING!   To reduce the risk of electric shock or damage to the equipment:

   Do not disable the power cord grounding plug. The grounding plug is an important safety feature.

   Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.

   Disconnect power from the equipment by unplugging the power cord from the electrical outlet.

   For your safety, do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

Mounting the Monitor to User-Supplied Support Hardware

The monitor can be installed to any support that meets the VESA standards.

NOTE: This apparatus is intended to be supported by a UL or CSA Listed wall mount bracket.

CAUTION: The HP Quick Release 2 can be installed directly to a wall to mount the monitor panel. It is designed to support a maximum of up to 10.9 kg (24 lbs). If you are mounting to a wall, HP recommends that you consult with a qualified engineering, architectural, or construction professional to determine the appropriate type and quantity of mounting fasteners required for your application and to ensure that the mounting solution is properly installed to support applied loads.

The weight for your model can be found in Technical Specifications on page 42.

Before you begin, make sure the monitor is turned off and the power and signal cables are disconnected. Also disconnect any USB cables. To protect the panel, lay it face down on a soft, flat surface.

Mounting the ZR2040w Panel

1. Remove the four screws holding the panel to the pedestal.

2. To mount the panel, use the four holes surrounding the HP logo on the back of the monitor.

   Figure 3-12 Mounting the ZR2040w Model
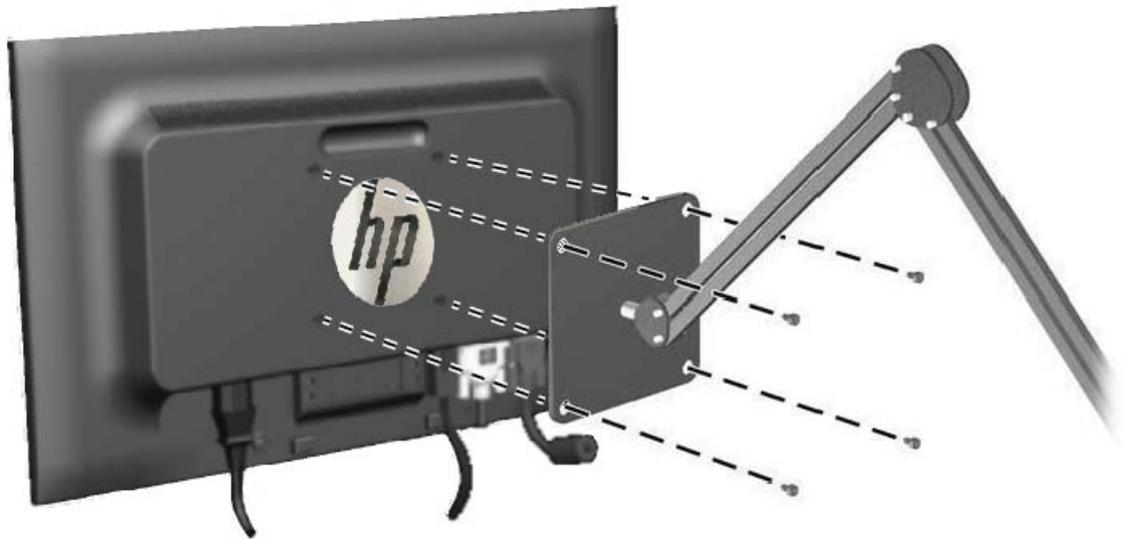
   CAUTION: This monitor supports the VESA industry standard 100 mm mounting holes. To attach a third-party mounting solution to the monitor, four 4 mm, 0.7 pitch, and 10 mm long screws are required. Longer screws must not be used because they may damage the monitor. It is important to verify that the manufacturer's mounting solution is compliant with the VESA standard and is rated to support the weight of the monitor display panel. For best performance, it is important to use the power and video cables provided with the monitor.

3. If you mount the panel in portrait orientation, you will need to rotate the image to match. See Portrait Orientation on page 24 for instructions.

Mounting a Quick-Release Panel

The ZR2240w, ZR2440w and ZR2740w support mounting to VESA-compliant hardware in two ways:

- Remove the HP stand and use the 4 VESA mount threaded holes (100 x 100 pattern) that are in the Quick Release 2 recess. Screws of the appropriate length are provided.

- Alternatively, follow the instructions below to use the HP Quick Release 2 feature with your VESA mounting hardware.

Start by removing the pedestal.

Figure 3-13 Removing the Pedestal
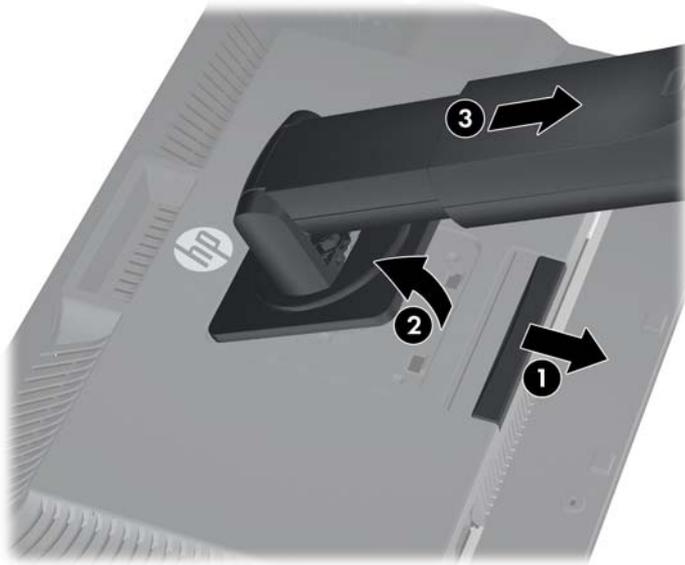
1. Press down on the latch near the bottom center of the monitor to unlock the HP Quick Release 2.

2. Swing the bottom of the pedestal up until the mounting plate clears the recess in the panel.

3. Slide the pedestal out of the recess.

4. Remove four screws holding the mounting plate to the head of the pedestal:

Figure 3-14 Removing the Mounting Plate from the Pedestal
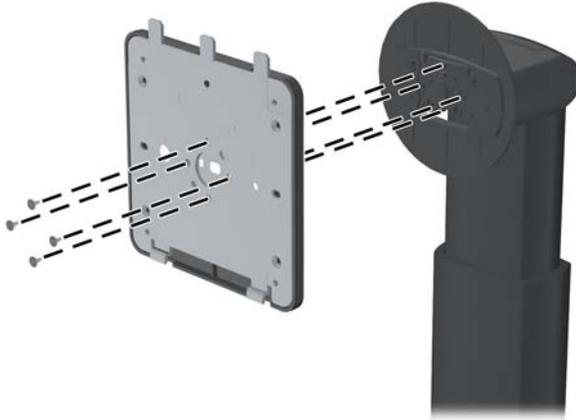
5. Remove four screws to separate the mounting plate from its cover:

Figure 3-15 Removing the Cover from the Mounting Plate
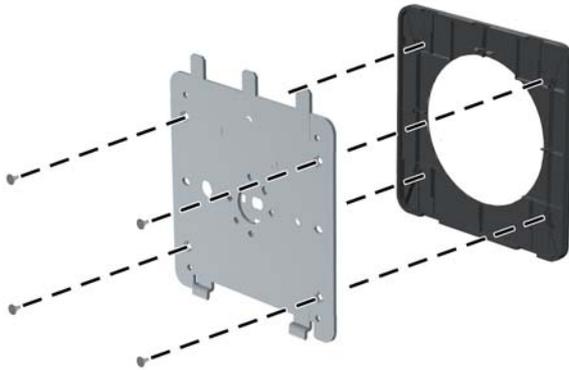
6. Attach the mounting plate to the wall or swing arm of your choice.

Figure 3-16 Installing the Mounting Plate
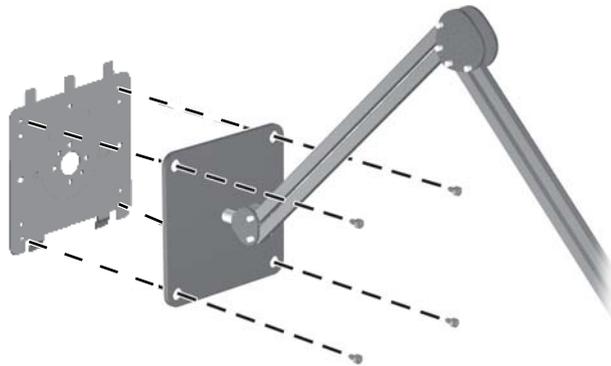
⚠ **CAUTION:** This monitor supports the VESA industry standard 100 mm mounting holes. To attach a third-party mounting solution to the monitor, four 4 mm, 0.7 pitch, and 10 mm long screws are required. Longer screws must not be used because they may damage the monitor. It is important to verify that the manufacturer's mounting solution is compliant with the VESA standard and is rated to support the weight of the monitor display panel. For best performance, it is important to use the power and video cables provided with the monitor.

7. Place the panel on the mounting bracket you've installed by aligning its recess with the mounting bracket, then sliding it down over the top of the bracket and pressing it back into place against the bracket. The release latch on the monitor will pop up when the monitor is safely locked in place.

Locating the Information Card (Select Models)

Figure 3-17 The Pull-out Information Card

The ZR2240w, ZR2440w, and ZR2740w models provide a card with the information you will need when contacting HP for support. The card pulls out from behind the USB connectors on the left side of the panel.

Installing a Cable Lock

You can secure the monitor to a fixed object with an optional cable lock available from HP.

Figure 3-18 Installing a Cable Lock

Turning on the Monitor

1. If your monitor has a master power switch (located on the rear of the monitor), put it in the On position (I) .

2. Press the power button on the computer to turn it on.

3. Press the power button on the front of the monitor to turn it on.

⚠ **CAUTION:**   Burn-in image damage may occur on monitors that display the same static image on screen for a prolonged period of time (12 consecutive hours of non-use). To avoid burn-in image damage on the monitor screen, you should always activate a screen saver application or sleep timer, or turn off the monitor when it is unused for a long time. Image retention is a condition that may occur on all LCD screens. Monitors with a "burned-in image" are not covered under the HP warranty.

📝 **NOTE:**   If pressing the power button has no effect, the Power Button Lockout feature may be enabled. To disable this feature, press and hold the monitor power button for 10 seconds.

You may see a status message or an image on the screen. The LED on the front panel will turn blue. If the monitor is not receiving any input, it will soon go into low-power mode, indicated by the LED turning amber.

Installing Software and Utilities

The CD that comes with the monitor contains files you can install on the computer:

- an .INF (Information) file
- an .ICM (Image Color Matching) file
- auto-adjustment pattern utility and its documentation file
- HP Display Assistant and its User Guide
- Monitor Driver and its Readme file
- PDF Complete, a utility for viewing PDF files
- additional software for the monitor model

NOTE: You may not need any of these files if the plug-and-play automatic installation meets your needs.

If you have set your monitor up in portrait position and have a ZR2040w, ZR2240w, or ZR2440w, install the HP Display Assistant from the CD; you will need it to rotate your image into portrait mode. More information on Display Assistant can be found in Using the HP Display Assistant Utility on page 36 and in the HP Display Assistant User Guide on the CD.

Installing PDF Complete allows you to read the PDF files on the CD. It is a limited use complimentary PDF document creation product from HP.

NOTE: If the monitor does not include a CD, the .INF, .ICM and driver files can be downloaded from the HP monitors support Web site. See Downloading from the Internet on page 22 in this chapter.

The Information File

The .INF file defines monitor resources used by Microsoft Windows operating systems to ensure monitor compatibility with the computer's graphics adapter.

This monitor is Microsoft Windows Plug and Play compatible and the monitor will work correctly without installing the .INF file. Monitor Plug and Play compatibility requires that the computer's graphic card is VESA DDC2–compliant and that the monitor connects directly to the graphics card. Plug and Play does not work through separate BNC type connectors or through distribution buffers/boxes.

The Image Color Matching File

The .ICM files are data files that are used in conjunction with graphics programs to provide consistent color matching from monitor screen to printer, or from scanner to monitor screen. These files are activated from within graphics programs that support this feature.

NOTE: The ICM color profile is written in accordance with the International Color Consortium (ICC) Profile Format specification.

Installing the .INF and .ICM Files

If you need to the .INF, .ICM, or driver files, you can install them from the CD or download them from the internet.

Installing from the CD

To install the files from the CD:

1. Insert the CD in the computer CD-ROM drive. The CD menu is displayed.

2. View the **Monitor Driver Software Readme** file.

3. Select **Install Monitor Driver Software**.

4. Follow the on-screen instructions.

5. Ensure that the proper resolution and refresh rates appear in the Windows Display control panel.

> **NOTE:** You may need to install the digitally signed monitor .INF and .ICM files manually from the CD in the event of an installation error. Refer to the Monitor Driver Software Readme file on the CD.

Downloading from the Internet

To download the latest version of .INF, .ICM or driver files from the HP monitors support Web site:

1. Go to http://www.hp.com/support and select the country region.

2. Follow the links for the monitor to the support page and download page.

3. Ensure the system meets the requirements.

4. Download the software by following the instructions.

Adjusting the Monitor

1. Tilt the monitor's panel forward or backward to set it to a comfortable eye level.

    Figure 3-19 Adjusting the Tilt

2. If your monitor has the ability to swivel, adjust it to the left or right for the best viewing angle.

Figure 3-20 Adjusting the Viewing Angle (Select Models)

3. Models ZR2240w, ZR2440w, and ZR2740w provide for height adjustment. Adjust the monitor's height so that it is parallel to your eye height for a comfortable viewing position. A lock-down/ release button on the back of the column prevents the display head from sliding up when the monitor is lifted. If the display head is locked in the lowest position, relase and adjust it as follows:

Figure 3-21 Adjusting the Height (Select Models)

a. Make sure that the monitor is safely positioned on a stable surface.

b. Gently push down on the display head (1).

c. While pushing down the display head, press the lock-down/release button on the back of the column (2).

d. Guide the display head up to the desired height (3).

4. The default orientation of the monitor is landscape. If you want to change to portrait, follow the instructions in the next section, .

Portrait Orientation

The ZR2040w must be mounted in the orientation you wish to use. Other models can be pivoted after mounting. To do this, raise the panel to its highest position and pivot it clockwise from landscape to portrait.

Figure 3-22 Pivoting the Monitor (Select Models)

NOTE: It may be necessary to tilt the monitor panel back to prevent the corner of the panel from coming in contact with the base when pivoting.

If your model is a ZR2740w, rotate the image using the workstation video driver control panel (for AMD Graphics, start the CATALYST Control Center; for NVIDIA graphics, start the NVIDIA Control Center). Refer to the Online Help of your workstation video driver for more information.

For other models, use the HP Display Assistant software (included on the software and documentation CD) to rotate the image. If your model has an OSD, it can be rotated to portrait mode by pressing the Menu button on the monitor's front panel, then selecting **OSD Control** > **Rotate OSD**.

4 Operating the Monitor

Overview of Operation

If you are not familiar with HP Performance monitors, read this section for an overview of how they operate. This will help you locate specific information elsewhere in this manual.

Your monitor provides for more than one source of input. It will scan the various inputs to find an active one and display that image. You can change sources manually, using the SOURCE button on the front panel. The scanning order is initially set to DisplayPort, DVI-D, HDMI, VGA, making DisplayPort the default source of video.

Some models give you control of the scanning order and default source through an On-Screen Display (OSD) menu. If your front panel has a menu (▤◀) button, it provides an OSD. The OSD also lets you prevent the monitor from switching sources.

If the monitor is not receiving any input, it will go into low power mode ("sleep") and the LED on the front will turn from blue to amber. This means that the monitor will sleep when the computer does, unless it has some other source of input. You can send it into low-power mode using the power (⏻) button on the front. The OSD lets you put sleeping and waking on a timer or stay awake all the time (not recommended).

Your monitor displays its state through the LED on the front panel and through messages on the screen. These indicators vary from one model to another, but all use the following LED indicators:

- Blue – normal operation

- Amber – low-power mode

- Flashing blue – the input calls for higher resolution than the monitor can provide

- Flashing amber – timed sleep, that is, the monitor is in low-power mode and will awaken on a timer

- No light – normal operation or power off

In addition to these indicators, some models use screen messages as well, detailed later in this chapter.

Image quality is well-controlled with digital inputs. For analog input, various tools are provided for adjusting the quality: a software utility, an auto-adjust function, and options in the OSD.

ZR2040w and ZR2240w Model

The order in which these monitors scan the inputs begins with the DisplayPort, making it the default input. If DisplayPort is inactive, the monitor will scan for an active input in this order: DVI-D, HDMI (ZR2240w only), VGA. You can change the current input, the default source, and the scan order

through the OSD. Pressing the + button on the front of the monitor will take you directly to the OSD source-control submenu.

Figure 4-1 ZR2040w and ZR2240w Front Panel Controls

Control			Function
1		Menu	Opens, selects or exits the OSD menu.
2		Minus	If the OSD menu is on, press to navigate backward through the OSD menu and decrease adjustment levels.
			If the OSD menu is inactive, resets OSD choices to their factory defaults, ZR2040w model only.
3		Plus/source	If the OSD menu is on, press to navigate forward through the OSD menu and increase adjustment levels.
			If the OSD menu is inactive, press to activate the source button that chooses the video signal input.
4		OK/auto	If the OSD menu is on, press to select the highlighted menu item.
			If the OSD menu is inactive, press to activate the auto adjustment feature to optimize the screen image.
5		Power	Puts the monitor into low-power mode.
6		Power LED	Blue = Fully powered.
			Amber = Sleep mode.
			Flashing Amber = Sleep Timer mode.
			Off indicates power off, or normal operation if the LED is suppressed.

ZR2440w Model

The default input on the ZR2440w is DisplayPort and the scan order is initially set to DisplayPort, DVI-D, HDMI. You can change the current input, the default and the scan order through the OSD. Pressing the + button on the front of the monitor will take you directly to the OSD source-control submenu.

Figure 4-2 ZR2440w Front Panel Controls

Control			Function
1	▤	Menu	Opens, selects or exits the OSD menu.
2	—	Minus	If the OSD menu is on, press to navigate backward through the OSD menu and decrease adjustment levels.
3	✛source	Plus/source	If the OSD menu is on, press to navigate forward through the OSD menu and increase adjustment levels.
			If the OSD menu is inactive, press to activate the source button that chooses the video signal input (VGA, DVI, or DisplayPort).
4	**OK**	OK	If the OSD menu is on, press to select the highlighted menu item.
5	⏻	Power	Turns the monitor on or off as long as the master power switch on the rear panel is on.
6		Power LED	Blue = Fully powered.
			Amber = Sleep mode.
			Flashing Amber = Sleep Timer mode.
			No light indicates power off, or normal operation if the LED is suppressed.

ZR2740w Model

For the ZR2740w model, the default input is DisplayPort. You can change the current input by pressing the SOURCE button on the front of the panel.

The front buttons also let you adjust brightness and put the monitor in low-power mode:

Figure 4-3 ZR2740w Front Panel Controls

Control			Function
1	**SOURCE**	Source	Toggles the video signal input source between DisplayPort and DVI-D.
2	**-**	Minus	Decreases brightness.
3	**+**	Plus	Increases brightness.
4	⏻	Power	Turns the monitor on or off as long as the master power switch on the rear panel is on.
5		Power LED	Solid blue indicates the first 30 seconds of normal operation.
			Solid amber indicates low-power mode.
			Continuously-flashing blue indicates signal input in a non-supported mode. (See ZR2740w Model Preset Modes on page 49 for supported modes.)
			Three blue flashes while you are adjusting brightness indicate the limit of the screen's brightness range.
			No light indicates normal operation or power off.

Holding down either the + or — button causes the brightness setting to change more rapidly. When you reach either the minimum or maximum brightness, the LED will flash three times.

Pressing the Power button, ⏻, puts the monitor in low power mode. (To turn power off completely, use the switch on the rear of the panel.) The monitor also enters low-power mode when there is no video signal input.

When the monitor is first powered on, the LED turns blue and remains blue for about half a minute. It then turns off. If the monitor receives a signal outside its range (e.g., too high a frequency), the LED flashes blue continuously.

This model does not use an OSD or on-screen messages.

Using the On-Screen Display Menu (Select Models)

The On-Screen Display (OSD) menu gives you choices for operating your monitor. Not all menu options below are available on all models. For example, monitors with no analog input do not show menus specific to analog images. The ZR2740w does not use an OSD. Models that use an OSD have a menu (▣◀) button on the front.

NOTE: If there is a problem with the display settings, try resetting the settings to the factory defaults by opening the OSD and selecting **Factory Reset** from the OSD menu.

To access the OSD, do the following:

1. If the monitor is not already on, press the Power button to turn on the monitor.

2. Press the Menu button on the monitor's front panel.

   You will see a menu of options and submenus.

3. To navigate through the menu, press the + (Plus) button on the monitor's front panel to scroll up, or the — (Minus) button to scroll down.

4. To select an item from the OSD Menu, use the + or — buttons to scroll to and highlight your selection, then press the OK button to select that function.

5. Adjust the item using the + or — buttons on the front panel to adjust the scale.

6. After adjusting the function, select **Save and Return**, or **Cancel** if you don't want to save the setting, then select **Exit** from the Main Menu. The Save and Return option is only active if you change a menu item.

NOTE: If the buttons remain untouched for 30 seconds (factory default) while displaying a menu, the firmware will save the current adjustments and exit. Also, if the video controller changes video mode while the OSD is active, the current (adjusted) settings will not be saved, the OSD will be turned off, and the new mode will be displayed.

OSD Menu Selections

Below are the submenus of the OSD and their options. Not all models will display all submenus. For example, a monitor with no DCR (dynamic contrast ratio) will not display the DCR option. In addition, the wording of some options might vary slightly from the wording here, depending on model. These variations are not great enough to cause confusion about which option is which.

Table 4-1 **OSD Menu**

Icon	Main Menu	Submenu	Description
☼	Brightness	Adjustable scale, 0–100	Adjusts the brightness level of the screen.
◑	Contrast	Adjustable scale, 0–100	Adjusts the contrast level of the screen.
🎨	Color		Selects the screen color temperature. The factory default is 6500K or Custom Color, depending on the model.
		Warm (5000K)	Changes color to slightly reddish white.
		Standard (6500K)	Uses standard colors (default).
		Cool (9300K)	Changes color to slightly blueish white.
		Custom (RGB)	Selects and adjusts your own color scales: ● Red Color - sets your own red color levels ● Green Color - sets your own green color levels ● Blue Color - sets your own blue color level
		Color tint	Adjustable scale, 0–100 that lets you alter the overall cast of the colors, making them more red, more green or more blue.
⊞	Image Control		Adjusts the screen image (VGA input only).
↺		Auto Adjustment	Automatically adjusts the screen image (VGA input only).
▥		Clock	Minimizes any vertical bars or strips visible on the screen background. Adjusting the Clock will also change the horizontal screen image.
▤		Clock Phase	Adjusts the focus of the display. This adjustment allows you to remove any horizontal noise and clear or sharpen the image of characters.
⊟		Horizontal Position	Adjusts the position of the screen image left and right.
⊡		Vertical Position	Adjusts the position of the screen image up and down.

Table 4-1 **OSD Menu (continued)**

Icon	Main Menu	Submenu	Description
		Custom Scaling	Selects the method on how displayed information on the monitor will be formatted. Select:
			● Fill to Screen - image fills the entire screen and may look distorted or elongated because of non-proportional scaling of height and width
			● Fill to Aspect Ratio - image is sized to fit the screen and maintains proportional image
			● Fill to 16:9 Aspect Ratio
			● Fill to 4:3 Aspect Ratio
			● Overscan - supports enlarging the image such that the 5% along each edge disappears outside the screen. Overscan is available for DVI-D, HDMI and DisplayPort inputs. This option can be set to:
			◦ Off
			◦ On
			◦ Auto - scaling is determined by information that is sent as part of the HDMI input.
A		Sharpness	Adjusts the screen image to look sharper or softer.
OD		Video OverDrive	Turns on or off the over drive function that improves the response time of the panel for watching motion video. The default is OFF.
DCR		Dynamic Contrast Ratio	Turning this option on allows the monitor to adjust Contrast dynamically, as the image changes. The factory default is Off.
▮	OSD Control		Provides a menu for adjusting the on-screen display (OSD) controls.
↔□↔		Horizontal OSD Position	Changes the viewing position of the OSD menu to the left or right area of the screen.
□		Vertical OSD Position	Changes the viewing position of the OSD menu to the top or bottom area of the screen.
▦		OSD Transparency	Adjust to view the background information through the OSD.
▤◔		OSD Timeout	Sets the time duration in seconds that the OSD is visible after the last button is pressed. The range is 5 – 60 seconds. The factory default is 30 seconds.
OSD⟩		Rotate OSD	Rotates the OSD menus and messages to support the monitor's pivot feature. The choices are Landscape and Portrait.
▤	Management		Selects the OSD and power management features of the monitor.

Table 4-1 **OSD Menu (continued)**

Icon	Main Menu	Submenu	Description
		Power Saver	Enables the power saving feature. Select: ● On ● Off The factory default is On.
		Power On Recall	Restores power to the monitor following an unexpected removal of power. Select: ● On ● Off The factory default is On.
		Mode Display	Displays the resolution, refresh rate and frequency information on the screen each time the OSD Main Menu is accessed. Select: ● On ● Off The factory default is On.
		Monitor Status	Displays the operating status of the monitor each time the monitor is powered on. Select the location to display the status to: ● Top ● Middle ● Bottom ● Off The factory default is Top.
		DDC/CI Support	Allows the computer to control some OSD menu features such as brightness, contrast and color temperature. Set to: ● On ● Off The factory default is On.
		Bezel Power LED	Turns off the power LED on the front panel of the monitor. The factory default is On.

Table 4-1 OSD Menu (continued)

Icon	Main Menu	Submenu	Description
X		Sleep Timer	Provides the timer adjustment menu options: ● Set Current Time—sets the current time in hours and minutes ● Set Sleep Time—sets the time you want the monitor to go to sleep ● Set on Time—sets the time you want the monitor to wake up from sleep mode ● Timer—sets the Sleep Timer feature On or Off. The default setting is Off. ● Sleep Now—immediately sets the monitor to enter sleep mode
	Language		Selects the language in which the OSD menu is displayed. The factory default is English.
(i+)	Information		Selects and displays important information about the monitor.
		Current Settings	Provides the current input video mode.
		Recommended Settings	Provides the recommended resolution mode and refresh rate for the monitor.
		Serial Number	Reports the serial number of the monitor. The serial number is needed if contacting HP technical support.
		FW Version	Reports the version of the driver (firmware).
		Backlight Hours	Reports the total hours of backlight operation.
		Service Support	http://www.hp.com/support
	Factory Reset		Returns all OSD menu settings and DDC/CI controls to the factory default settings, except the Language.
	Source Control		Selects the video input signal. The default is the first active input when examined in this order: DisplayPort, DVI-D, HDMI, VGA.
		DisplayPort	Selects DisplayPort as the video input signal.
		DVI	Selects DVI-D as the video input signal.
		HDMI	Selects HDMI as the video input signal.
		VGA	Selects VGA as the video input signal.

Table 4-1 **OSD Menu (continued)**

Icon	Main Menu	Submenu	Description
12		Default Source	Selects the default or primary video input signal when the monitor is connected to two active and valid video sources. The monitor will automatically determine the video format. The choices are: ● DisplayPort ● DVI-D ● HDMI ● VGA The factory default is the first active input when examined in this order: DisplayPort, DVI-D, HDMI, VGA.
⟷ ON·OFF		Auto-Switch Source	Lets you prevent the monitor from automatically switching to another active input when the current input becomes inactive. If you set Auto-Switch Source to Off, the monitor will go dark rather than scan for another active input.
⏏?		Source Detection	This option is displayed in the OSD when a DisplayPort input is selected. You can set Source Detection to: ● Always Active ● Low Power The factory default is Low Power.
⬤	Exit		Exits the OSD menu screen.

Screen Messages

Models that use an OSD also use screen messages to keep you informed:

- **Monitor Status** When the monitor is powered on and when the input source is changed, a Monitor Status message is displayed for five seconds. The message shows which input is currently active, the status of the auto-switch source setting (On or Off), and the default source. If the current mode is a preset, the message gives the current resolution and refresh rate; if not, it gives the horizontal and vertical frequencies and recommended resolution. Blocks of red, green and blue verify that the three colors are working.

- **Scanning Inputs** Indicates the monitor is searching for an active input.

- **Input Signal Out of Range — Change resolution setting to…** Indicates the monitor does not support the input signal because the resolution and/or refresh rate are set higher than the monitor supports.

- **No Source Signal, No Input Signal** When no input is active, the monitor will go into low power mode. But if low-power mode is disabled, the monitor displays the "No source signal" or "No input signal" message.

- **Auto Adjustment in Progress** Indicates the auto-adjustment function is active.

- **Monitor Going to Sleep** Indicates the screen display is entering low power mode.

- **Check Video Cable** Displayed when there are no video cables connected or when you try to select an input that is not properly connected.

- **OSD Lockout** The OSD can be enabled or disabled by pressing and holding the Menu button on the front panel for 10 seconds. If the OSD is locked when you press the Menu button, the warning message **OSD Lockout** displays for ten seconds.
    - If the OSD is locked, press and hold the Menu button for 10 seconds to unlock the OSD.
    - If the OSD is unlocked, press and hold the Menu button for 10 seconds to lock the OSD.

- **Power Button Lockout** Indicates the power button on the front of the monitor is locked.
    - If the power button is locked, press and hold it for 10 seconds to unlock it.
    - If the power button is unlocked, press and hold it for 10 seconds to lock it.

- **Dynamic Contrast Ratio On** Indicates that Dynamic Contrast Ratio has been turned on. This occurs if Dynamic Contrast Ratio is turned on in the Image Control OSD menu.

- **Dynamic Contrast Ratio Off** Indicates that Dynamic Contrast Ratio has been turned off. This occurs if Dynamic Contrast Ratio is turned off in the Image Control OSD menu.

- **Theft Mode Enabled** Indicates that theft deterrence mode has been activated. Theft deterrence is an optional feature that can be set up in HP Display Assistant. Theft deterrence mode is triggered if both the power and display cables have been disconnected from the monitor, the monitor is reconnected to a different computer, and the theft deterrence PIN number is not entered within the elapsed time. When the monitor is in theft deterrence mode, all front panel buttons are disabled other than the power button.

Adjusting the Monitor Settings

You can use your computer software to set such parameters as sleep timer, resolution and color temperature. Some monitor models provide for you to override the computer's settings with controls at the monitor. Below are explanations of some of your options.

Using the HP Display Assistant Utility

HP Display Assistant, included on the software and documentation CD, is a software utility that guides you through the tuning process with easy to understand instructions and background patterns designed for each monitor control. Models ZR2040w, ZR2240w, and ZR2440w support the HP Display Assistant.

The HP Display Assistant provides:

- Accurate screen calibration through the use of step-by-step instruction Wizards to obtain the best overall image quality.

- Software control of the monitor image and color settings to eliminate dependence on the monitor's front panel buttons and On-Screen Display (OSD) menu.

- Defined preset display settings for each individual user in a multi-user environment.

- Multiple preset display settings for a single user based on content and ambient lighting.

- Asset Management and Power Management capabilities that include remote control for individual displays or a group of displays on the domain from a centralized console application.

The HP Display Assistant Utility has two modes of operation: Wizard and OSD mode. The preferred method of use is Wizard mode, which takes you through a step-by-step process to accurately calibrate the monitor. This method relies on a sequence of steps that will give you the best display results.

> **NOTE:** Refer to the HP Display Assistant user guide for additional information about the software.

Entering User Modes

A display mode is a combination of settings for resolution, horizontal frequency, and vertical frequency. The monitor has preset modes from which it selects depending on the input it is receiving. These are detailed in Appendix B, Technical Specifications on page 42. The monitor will also store and recognize new modes if you change the settings yourself. The video controller signal may occasionally call for this if you are not using a standard graphics adapter. To change resolution or frequency, find the display settings provided by your computer's operating system.

Using the Auto-Adjustment Function

For models with analog input, you can optimize the screen performance for VGA by using the OK/auto button on the monitor and the auto-adjustment pattern software utility on the CD provided.

Do not use this procedure if the monitor is using a DVI or DisplayPort input; the monitor adjusts itself with these inputs. If the image source is VGA (analog), this procedure can correct the following conditions:

- Fuzzy or unclear focus

- Ghosting, streaking or shadowing effects

- Faint vertical bars

- Thin, horizontal scrolling lines

- An off-center picture

To use the auto-adjustment feature:

1. Allow the monitor to warm up for 20 minutes before adjusting.

2. Press the OK/auto button on the monitor front panel.

   - You can also press the Menu button, then select **Image Control > Auto-Adjustment** from the OSD Main Menu. Refer to .

   - If the result is not satisfactory, continue with the procedure.

3. Insert the CD in the disc drive. The CD menu is displayed.

4. Select **Open Auto-Adjustment Software**. The setup test pattern is displayed.

5. Press the OK/auto button on the monitor front panel to produce a stable, centered image.

6. Press the ESC key or any other key on the keyboard to exit the test pattern.

Optimizing Image Performance Manually

Two controls in the on-screen display can be adjusted to improve image performance: Clock and Clock Phase.

NOTE: The Clock and Clock Phase controls are adjustable only when using an analog input. These controls are not adjustable for digital inputs.

The Clock must first be set correctly since the Clock Phase settings are dependent on the main Clock setting. Use these controls only when the auto-adjustment function does not provide a satisfactory image.

- **Clock** Increase or decrease the value to minimize any vertical bars or stripes visible on the screen background.

- **Clock Phase** Increase or decrease the value to minimize video flickering or blurring.

NOTE: When using the controls, you will obtain the best results by using the auto-adjustment pattern software utility provided on the CD.

When adjusting the Clock and Clock Phase values, if the monitor images become distorted, continue adjusting the values until the distortion disappears. To restore the factory settings, select **Yes** from the Factory Reset menu in the on-screen display.

To eliminate vertical bars (Clock):

1. Press the Menu button on the monitor's front panel to open the OSD Menu, and then select Image Control > Clock.

2. Press the + (Plus) or — (Minus) buttons on the monitor's front panel to eliminate vertical bars. Press the buttons slowly so that you do not miss the optimum adjustment point.

    Figure 4-4 Adjusting the Clock
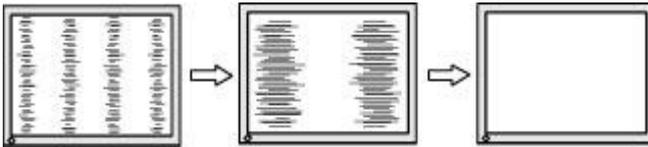
3. After adjusting the Clock, if blurring, flickering, or bars appear on the screen, proceed to adjust the Clock Phase.

To remove flickering or blurring (Clock Phase)

1. Press the Menu button on the monitor's front panel to open the OSD Menu, and then select Image Control > Clock Phase.

2. Press the + (Plus) or — (Minus) buttons on the monitor's front panel to eliminate flickering or blurring. Flicking or blurring may not be eliminated depending on your computer or graphics controller card installed.

    Figure 4-5 Adjusting the Clock Phase
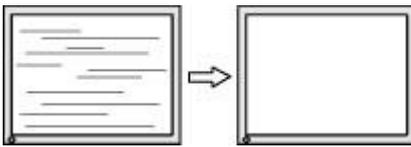
To correct screen position (Horizontal Position or Vertical Position):

1. Press the Menu button on the monitor's front panel to open the OSD Menu, and then select Image Control > Horizontal Position and/or Vertical Position.

2. Press the + (Plus) or — (Minus) buttons on the monitor's front panel to properly adjust the position of the image in the display area of the monitor. The Horizontal Position shifts the image left or right; the Vertical Position shifts the image up and down.

    Figure 4-6 Adjusting the Image Position
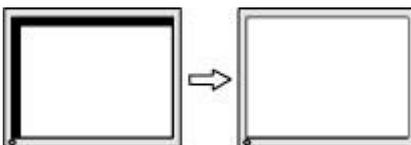
Sleep Timer Mode

You can set your computer to sleep when not in use, and this will cause the monitor to sleep (unless you disable low-power mode). In addition, some monitors support a sleep timer, an energy-saving feature that enables you to set daily times for the monitor to go into low-power mode and wake up again. This

also extends the life of the backlight bulbs in the monitor. The timer is set through the OSD and is available on models that use the OSD.

NOTE: The timer turns the monitor off and on again every day, seven days a week.

The Sleep Timer has five settings:

- Set Current Time
- Set Sleep Time
- Set On Time
- Timer: On/Off
- Sleep Now

To set the timer:

1. Press the Menu button on the monitor front panel to display the **OSD Menu**.

2. Scroll down and highlight **Management**.

3. Press the OK button to select **Management**.

4. Scroll down and highlight and select **Sleep Timer > Set Current Time**.

NOTE: You must set the current local time before you reset the time for **Sleep Time** or **On Time**. Note that the time is displayed in a 24 hour clock format. For example, 1:15 p.m. is displayed as 13 hours 15 minutes.

A power failure or loss of power to the monitor will cause the timer to reset to 00:00. If this occurs, you will need to reset the sleep timer mode.

5. Press the OK button once to enter the adjustment mode for hours.

6. Press the — (Minus) or + (Plus) button to adjust the hour.

7. Press the OK button again to enter the time for minutes.

8. Press the — (Minus) or + (Plus) button to adjust the minutes.

9. Press the OK button to lock in the time chosen.

10. After setting the current time, the highlight automatically skips to **Set Sleep Time**. Repeat steps 6 through 9 to set the time you want to monitor to go into low-power mode.

11. If you do not want to set **Sleep Time**, press the OK button twice, then select **Save and Return** to exit the menu.

12. After setting **Sleep Time**, the highlight automatically skips to **Set On Time**. Repeat steps 6 through 9 to set the time you want the monitor to wake up from low-power mode.

13. Set the **Timer mode** to **On** to activate the **Sleep Timer** settings.

14. When you are finished, select **Save and Return** to exit the menu.

The fifth selection, **Sleep Now**, turns the monitor backlights off immediately and stays in sleep mode until the next **On Time**, or until a monitor button is pressed.

A   Troubleshooting

Solving Common Problems

The following table lists problems you might encounter, the possible cause of each problem, and the recommended solutions.

Table A-1 **Common Problems**

Problem	Possible Cause	Solution
Screen is blank.	Power cord is disconnected.	Connect the power cord.
	Master power switch on the monitor's rear panel is turned off.	Set the master power switch to the on position (I) and press the front panel power button.
	Power button on front panel of the monitor is turned off.	Check that the master power switch on the rear of the monitor is set to the on (I) position. Press the front panel power button. **NOTE:** If pressing the power button has no effect, press and hold the power button for 10 seconds to disable the power button lockout feature.
	Video cable is improperly connected.	Connect the video cable properly. Refer to Chapter 3, Setting Up the Monitor on page 6 for more information.
	Wrong video cable is in use.	Ensure that you are using the video cables that came with the monitor.
	Screen blanking is active.	Press any key on the keyboard or move the mouse to inactivate the screen blanking utility.
Screen is blank and LED is flashing blue.	The input signal requires an unsupported display mode.	Check the table of preset display modes for your model; see Preset Display Resolutions on page 46.
Screen image appears distorted; text is fuzzy or blurred; image quality is degraded.	The computer's graphics card resolution is set lower or higher than the monitor's native resolution.	Set the computer's display resolution to the same mode as the monitor's recommended native screen resolution to provide the best picture quality.
Screen image appears distorted; shapes seem wrong.	Non-proportional scaling is in effect.	Set the scaling option ( ) in the OSD to "Fill to Aspect Ratio."
Image appears blurred, indistinct, or too dark.	Brightness and contrast are too low.	Increase the brightness. Increase the contrast or turn on DCR (dynamic contrast ratio).
Image is not centered.	Position may need adjustment.	Press the Menu button to access the OSD menu. Select Image Control/Horizontal Position or Vertical Position to adjust the horizontal or vertical position of the image.

Problem	Possible Cause	Solution
The screen displays the message, **Check Video Cable**.	Monitor video cable is disconnected or loose.	Connect the appropriate video cable (DisplayPort, DVI-D, HDMI, or VGA) between the computer and monitor. Be sure that the computer power is off while connecting the video cable.
The screen displays the message, **Input Signal Out of Range...**	Video resolution and/or refresh rate are set higher than what the monitor supports.	Restart the computer and enter Safe Mode (on Windows systems, do this by holding down the F8 key during boot). Change the settings to a supported setting (see Preset Display Resolutions on page 46). Restart the computer so that the new settings take effect.
The monitor is off but it did not seem to enter into a low-power sleep mode.	The monitor's power saving control is disabled.	In the monitor's OSD menu, select **Management** > **Power Saver**. The control should be set to **On** to allow the monitor to enter into low-power mode.
The screen displays the message, **OSD Lockout**.	The monitor's OSD Lockout function is enabled.	Press and hold the Menu button for 10 seconds to unlock the OSD function.
Power Button Lockout is displayed.	The monitor's Power Button Lockout function is enabled.	Press and hold the Power button for 10 seconds to unlock the power button function.

Online Technical Support

For online access to technical support information, self-solve tools, online assistance, community forums of IT experts, broad multivendor knowledge base, and monitoring and diagnostic tools, go to http://www.hp.com/support

Preparing to Call Technical Support

If you cannot solve a problem using the troubleshooting tips in this section, you may need to call technical support. Have the following information available when you call:

- The monitor model and serial numbers. If your monitor has a pull-out information card, these numbers are on it
- Purchase date on invoice
- Conditions under which the problem occurred
- Error messages received
- Hardware configuration
- Name and version of the hardware and software you are using

B   Technical Specifications

📝 **NOTE:** All performance specifications are provided by the component manufacturers. Performance specifications represent the highest specification of all HP's component manufacturers' typical level specifications for performance and actual performance may vary either higher or lower.

ZR2040w Model

Display	50.8 cm diagonal	20 inches diagonal
Type	TFT LCD	
Viewable Image Size	44.28 x 24.9 cm	17.4 x 9.8 inches
Tilt	-5 to 25°	
Maximum Weight (Unpacked)	3.8 kg	8.44 lbs
Dimensions (including base)		
Height	35.92 cm	14.14 inches
Depth	15.11 cm	5.94 inches
Width	48.2 cm	18.97 inches
Maximum Graphic Resolution	1600 x 900 (60 Hz)	
Optimum Graphic Resolution	1600 x 900 (60 Hz)	
Text Mode	720 x 400	
Dot Pitch	0.276 (W) x 0.276 (H) mm	
Pixels Per Inch	92	
Horizontal Frequency	83 kHz	
Vertical Refresh Rate	60 Hz	
Environmental Requirements Temperature		
Operating Temperature	5 to 35° C	41 to 95° F
Storage Temperature	-20 to 60° C	-4 to 140° F
Relative Humidity:		
Operating	20 to 80%	
Storage	5 to 95%	
Power Source	100 to 240 VAC, 50/60 Hz	

Altitude:		
Operating	0 to 5000 m	0 to 16,400 feet
Storage	0 to 12,192 m	0 to 40,000 feet
Power Consumption (maximum)	33 watts	
Low-power mode	0.3 watts	
Input Terminal	One DVI connector with cable included; one DisplayPort connector with cable included; one VGA connector with cable	

ZR2240w Model

Table B-1 **ZR2240w Specifications**

Display	54.72 cm diagonal	21.5 inches diagonal
Type	TFT LCD	
Viewable Image Size	47.66 x 26.89 cm	18.76 x 10.59 inches
Tilt range	-5 to 35°	
Swivel range	-45 to 45°	
Maximum Weight (Unpacked)	7.92 kg	17.44 lbs.
Dimensions (including base)		
Height (highest position)	45.71 cm	18 inches
Height (lowest position)	36.71 cm	14.45 inches
Depth	23.39 cm	9.2 inches
Width	50.74 cm	19.98 inches
Maximum Graphic Resolution	1920 x 1080 (60 Hz) analog input	
	1920 x 1080 (60 Hz) digital input	
Optimum Graphic Resolution	1920 x 1080 (60 Hz) analog input	
	1920 x 1080 (60 Hz) digital input	
Text Mode	720 x 400	
Dot Pitch	0.2475 mm	0.0097 inches
Pixels Per Inch	102	
Horizontal Frequency	24 – 83 kHz	
Vertical Refresh Rate	50 – 76 Hz	

Environmental Requirements Temperature

Operating Temperature	5 to 35° C	41 to 95° F
Storage Temperature	-20 to 60° C	-4 to 140° F

Relative Humidity:

Operating	20 to 80%
Storage	5 to 95%

Power Source	100 – 240 VAC, 50/60 Hz

Altitude:

Operating	0 to 5000 m	0 to 16,400 feet
Storage	0 to 12,192 m	0 to 40,000 feet

Power Consumption (maximum)	46 watts
Low-power mode	0.3 watts

Input Terminal	One VGA connector with cable included; one DVI connector with cable included; one HDMI connector; one DisplayPort connector with cable included

ZR2440w Model

Display	61.13 cm diagonal	24.06 inches diagonal
Type	TFT LCD	
Viewable Image Size	51.84 x 32.4 cm	20.41 x 12.76 inches
Tilt	-5 to 35°	
Swivel	-45 to 45°	
Maximum Weight (Unpacked)	8.5 kg	18.88 lbs.
Dimensions (including base)		
Height (highest position)	53.35 cm	21 inches
Height (lowest position)	43.35 cm	17.07 inches
Depth	23.53 cm	9.26 inches
Width	56.24 cm	22.14 inches
Maximum Graphic Resolution	1920 x 1200 (60 Hz)	
Optimum Graphic Resolution	1920 x 1200 (60 Hz)	
Text Mode	720 x 400	
Dot Pitch	0.2708 (W) x 0.2713 (H) mm	

Pixels Per Inch	94	
Horizontal Frequency	24 – 80 kHz	
Vertical Refresh Rate	24 – 60 Hz	
Environmental Requirements Temperature		
Operating Temperature	5 to 35° C	41 to 95° F
Storage Temperature	-20 to 60° C	-4 to 140° F
Relative Humidity:		
Operating	20 to 80%	
Storage	5 to 95%	
Power Source	100 – 240 VAC, 50/60 Hz	
Altitude:		
Operating	0 to 5000 m	0 to 16,400 feet
Storage	0 to 12,192 m	0 to 40,000 feet
Power Consumption (maximum)	36.8 watts	
Low-power mode	0.3 watts	
Input Terminal	One DVI connector with cable included; one DisplayPort connector with cable included; one HDMI connector	

ZR2740w Model

Display	68.74 cm diagonal	27 inches diagonal
Type	TFT LCD	
Viewable Image Size	59.87 x 33.77 cm	23.57 x 13.29 inches
Tilt	-5 to 30°	
Swivel	-45 to 45°	
Maximum Weight (Unpacked)	10.3 kg	22.88 lbs.
Dimensions (including base)		
Height (highest position)	54.04 cm	21.28 inches
Height (lowest position)	44.04 cm	17.34 inches
Depth	23.53 cm	9.26 inches
Width	64.6 cm	25.43 inches
Maximum Graphic Resolution	2560 x 1440 (60 Hz)	
Optimum Graphic Resolution	2560 x 1440 (60 Hz)	

Dot Pitch	0.2339 (W) x 0.2345 (H) mm	
Pixels Per Inch	108	
Horizontal Frequency	31.5 – 100 kHz	
Vertical Refresh Rate	60 Hz	
Environmental Requirements Temperature		
Operating Temperature	5 to 35° C	41 to 95° F
Storage Temperature	-20 to 60° C	-4 to 140° F
Relative Humidity:		
Operating	20 to 80%	
Storage	5 to 95%	
Power Source	100 – 240 VAC, 50/60 Hz	
Altitude:		
Operating	0 to 5000 m	0 to 16,400 feet
Storage	0 to 12,192 m	0 to 40,000 feet
Power Consumption (maximum)	75 watts	
Low-power mode	1 watt	
Input Terminal	One DVI connector with cable included; one DisplayPort connector with cable included	

Preset Display Resolutions

The display resolutions listed below are the most commonly used modes and are set as factory defaults. The monitor automatically recognizes these preset modes and they will appear properly sized and centered on the screen.

ZR2040w Model Preset Modes

Preset	Resolution (pixels)	Horizontal Frequency (kHz)	Refresh Rate (Hz)
1	640 x 480	31.469	59.94
2	720 x 400	31.469	70.087
3	800 x 600	37.879	60.317
4	1024 x 768	48.363	60.004
5	1280 x 720	45	59.94
6	1280 x 1024	63.981	60.02

7	1440 x 900	55.935	59.887
8	1600 x 900	60	60

Table B-2 ZR2040w High Definition Video Formats

Preset	Timing Name	Pixel Format	Horz Freq (kHz)	Vert Freq (kHz)	Pixel Rate (MHz)	OSD Display
1	480p	720 x 480	31.469	60	27	480p
2	720p60	1280 x 720	45	60	74.25	720p-60Hz
3	576p	720 x 576	31.25	50	27	576p
4	720p50	1280 x 720	37.5	50	74.25	720p-50Hz

ZR2240w Model Preset Modes

Preset	Pixel Format	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.469	59.940
2	720 x 400	31.469	70.087
3	800 x 600	37.879	60.317
4	1024 x 768	48.363	60.004
5	1280 x 720	45.00	59.94
6	1280 x 1024	63.981	60.020
7	1440 x 900	55.935	59.887
8	1600 x 900	60.0	60.0
9	1680 x 1050	65.290	59.954
10	1920 x 1080	67.5	60.00

Table B-3 ZR2240w High Definition Video Formats

Preset	Timing Name	Pixel Format	Horz Freq (kHz)	Vert Freq (kHz)	Pixel Rate (MHz)	OSD Display
1	480i	720 x 480	15.734	60	13.5	480i
2	480p	720 x 480	31.469	60	27	480p
3	720p60	1280 x 720	45	60	74.25	720p-60Hz
4	1080i60	1920 x 1080	33.75	60	74.25	1080i-60Hz
5	576i	720 x 576	15.625	50	13.5	576i

6	576p	720 x 576	31.25	50	27	576p
7	720p50	1280 x 720	37.5	50	74.25	720p-50Hz
8	1080i50	1920 x 1080	28.125	50	74.25	1080i-50Hz
9	1080p60	1920 x 1080	67.5	60	148.5	1080p-60Hz
10	1080p50	1920 x 1080	56.25	50	148.5	1080p-50Hz

ZR2440w Model Preset Modes

Preset	Pixel Format	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.469	59.940
2	720 x 400	31.469	70.087
3	800 x 600	37.879	60.317
4	720 x 480	31.469	59.940
5	1024 x 768	48.363	60.004

Table B-4 ZR2440w High Definition Video Formats

Preset	Timing Name	Aspect Ratio	Pixel Format	Horz Freq (kHz)	Vert Freq (Hz)	Pixel Rate (MHz)	CEA VIC	OSD Display
1a	480i60	4:3	720 x 480	15.734	60	13.5	6	480i-60Hz
1b	480i60	16:9	720 x 480	15.734	60	13.5	7	480i-60Hz
2a	480p60	4:3	720 x 480	31.469	60	27	2	480p-60Hz
2b	480p60	16:9	720 x 480	31.469	60	27	3	480p-60Hz
3	720p60		1280 x 720	45	60	74.25		720p-60Hz
4	1080i60		1920 x 1080	33.75	60	74.25		1080i-60Hz
5a	576i50	4:3	720 x 576	15.625	50	13.5	21	576i-50Hz
5b	576i50	16:9	720 x 576	15.625	50	13.5	22	576i-50Hz
6a	576p50	4:3	720 x 576	31.25	50	27	17	576p-50Hz
6b	576p50	16:9	720 x 576	31.25	50	27	18	576p-50Hz
7	720p50		1280 x 720	37.5	50	74.25		720p-50Hz
8	1080i50		1920 x 1080	28.125	50	74.25		1080i-50Hz
9	1080p60		1920 x 1080	67.5	60	148.5		1080p-60Hz
10	1080p50		1920 x 1080	56.25	50	148.5		1080p-50Hz

11	1080p23.976	1920 x 1080	27.0	24	74.250	32	1080p-24Hz
12	1080p24	1920 x 1080	27.0	24	74.250	32	1080p-24Hz
13	1080p25	1920 x 1080	28.125	25	74.250	33	1080p-25Hz
14	1080p29.97	1920 x 1080	33.750	30	74.250	34	1080p-30Hz

ZR2740w Model Preset Modes

Preset	Pixel Format	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
1	640 x 480	31.468	59.9
2	1280 x 720	44.771	59.8
3	2560 x 1400	88.786	59.9

Energy Saver Feature

In addition to normal operating mode, your monitor has a low-power, or "sleep" mode that uses less than .5 watts and from which it will awaken with any signal input. The monitor will go to sleep automatically when it stops receiving input, so putting your computer on a timer is one way to put the monitor on a timer. Some models also have their own sleep timers (see). The power LED on the front panel indicates the monitor's state: blue under full power, amber in sleep mode, and blinking amber on a sleep timer.

C   Agency Regulatory Notices

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett Packard Company may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity for Products Marked with the FCC Logo (United States Only)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

For questions regarding the product, contact:

Hewlett Packard Company

P. O. Box 692000, Mail Stop 530113

Houston, Texas 77269-2000

Or, call 1-800-HP-INVENT (1-800 474-6836)

For questions regarding this FCC declaration, contact:

Hewlett Packard Company

P. O. Box 692000, Mail Stop 510101

Houston, Texas 77269-2000

Or, call (281) 514-3333

To identify this product, refer to the Part, Series, or Model number found on the product.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Regulatory Notice

Products bearing the CE marking comply with the following EU Directives:

●   Low Voltage Directive 2006/95/EC

●   EMC Directive 2004/108/EC

●   Ecodesign Directive 2009/125/EC, where applicable

CE compliance of this product is valid if powered with the correct CE-marked AC adapter provided by HP.

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by HP for this product or product family and available (in English only) either within the product documentation or at the following web site: www.hp.eu/certificates (type the product number in the search field).

The compliance is indicated by one of the following conformity markings placed on the product:

CE	CE(!)
For non-telecommunications products and for EU harmonized telecommunications products, such as Bluetooth® within power class below 10mW.	For EU non-harmonized telecommunications products (If applicable, a 4-digit notified body number is inserted between CE and !).

Please refer to the regulatory label provided on the product. The point of contact for regulatory matters is:

Hewlett-Packard GmbH, Dept./MS: HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, GERMANY.

German Ergonomics Notice

HP products which bear the "GS" approval mark, when forming part of a system comprising HP brand computers, keyboards and monitors that bear the "GS" approval mark, meet the applicable ergonomic requirements. The installation guides included with the products provide configuration information.

Japanese Notice

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

Korean Notice

B급 기기
(가정용 방송통신기기)

이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Power Cord Set Requirements

The power cord set (flexible cord or wall plug) received with the monitor meets the requirements for use in the country where you purchased the equipment.

If you need to obtain a power cord for a different country, you should purchase a power cord that is approved for use in that country.

The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product. In addition, the cross-sectional area of the wire must be a minimum of 0.75 mm² or 18 AWG, and the length of the cord must be between 6 feet (1.8 m) and 12 feet (3.6 m). If you have questions about the type of power cord to use, contact an authorized HP service provider.

The monitor power supply is provided with Automatic Line Switching (ALS). This feature allows the monitor to operate on input voltages between 100–120V or 200–240V.

Power cords should be routed so that they are not likely to be walked on or pinched by items placed on, or against, them. Particular attention should be paid to the plug, electrical outlet, and the point where the cord exits from the product.

Japanese Power Cord Requirements

In Japan, use only the power cord received with this product.

⚠ **CAUTION:** Do not use the power cord received with this product on any other products.

Product Environmental Notices

ENERGY STAR® Qualification

As an ENERGY STAR Partner, Hewlett-Packard Company has followed the EPA's enhanced product qualification and certification process to ensure that the products marked with the ENERGY STAR logo are ENERGY STAR qualified per the applicable ENERGY STAR guidelines for energy efficiency.

The following ENERGY STAR® certification mark appears on all ENERGY STAR qualified displays:

The ENERGY STAR® program specifications for displays and computers were created by the EPA to promote energy efficiency and reduce air pollution through more energy-efficient equipment in homes, offices, and factories. One way products achieve this goal is by using the Microsoft Windows power management feature to reduce power consumption when the product is not in use.

The power management feature enables the computer to initiate a low-power or "sleep" mode after a period of user inactivity. When used with an external ENERGY STAR® qualified display, this feature also supports similar power management features for the display. To take advantage of these potential energy savings, users should use the default power management settings that are provided with ENERGY STAR qualified computers and displays. The default power management settings on ENERGY STAR qualified computers are preset to behave in the following ways when the system is operating on AC power:

● Turn off an external display after 15 minutes of user inactivity

● Initiate a low power sleep mode for the computer after 30 minutes of user inactivity

ENERGY STAR® qualified computers exit the low power sleep mode and ENERGY STAR qualified displays resume operation when the user resumes use of the computer. Examples include the user pressing the power/sleep button, receiving an input signal from an input device, receiving an input signal from a network connection with the Wake On LAN (WOL) feature enabled, etc.

Additional information on the ENERGY STAR® program, its environmental benefits and the potential energy and financial savings of the power management feature can be found on the EPA ENERGY STAR Power Management Web site at http://www.energystar.gov/powermanagement.

Disposal of Waste Equipment by Users in Private Household in the European Union

This symbol on the product or on its packaging indicates that this product must not be disposed of with your household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact the local city office, the household waste disposal service or the shop where you purchased the product.

HP Recycling Program

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, go to http://www.hp.com/recycle.

Chemical Substances

HP is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and Council). A chemical information report for this product can be found at http://www.hp.com/go/reach.

Restriction of Hazardous Substances (RoHS)

A Japanese regulatory requirement, defined by specification JIS C 0950, 2005, mandates that manufacturers provide Material Content Declarations for certain categories of electronic products offered for sale after July 1, 2006. To view the JIS C 0950 material declaration for this product, visit http://www.hp.com/go/jisc0950.

2008年、日本における製品含有表示方法、JISC0950が公示されました。製造事業者は、2006年7月1日以降に販売される電気・電子機器の特定化学物質の含有につきまして情報提供を義務付けられました。製品の部材表示につきましては、www.hp.com/go/jisc0950を参照してください。

Turkey EEE Regulation

In Conformity with the EEE Regulation

EEE Yönetmeliğine Uygundur

Ukraine Restriction of Hazardous Substances

The equipment complies with requirements of the Technical Regulation, approved by the Resolution of Cabinet of Ministry of Ukraine as of December 3, 2008 No. 1057, in terms of restrictions for the use of certain dangerous substances in electrical and electronic equipment.

D LCD Monitor Quality and Pixel Policy

The TFT monitor uses high-precision technology, manufactured according to HP standards, to guarantee trouble-free performance. It is guaranteed to have no bright spots, that is, pixels that are always white.

- A pixel consists of one red, one green, and one blue sub-pixel.

- If a defective whole pixel is always turned off, it appears as a dark spot on a bright background.

- A defective sub-pixel (dot defect) is less visible than a defective whole pixel and is small and only visible on a specific background.

To locate defective pixels, the monitor should be viewed under normal operating conditions, in normal operating mode at a supported resolution and refresh rate, from a distance of approximately 50 cm (20 in).

The panel is 90% defect-free at the time of shipment. HP expects that, over time, the industry will continue to improve its ability to produce LCDs with fewer cosmetic imperfections and HP will adjust guidelines as improvements are made.